California Environmental Protection Agency Air Resources Board	JOHN DEERE POWER SYSTEMS	EXECUTIVE ORDER U-R-004-0523-1 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2016	GJDXL04.5315	4.5	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Control Module, Exhaust Gas Recirculation, Selective Catalytic Reduction-Urea, Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Ammonia Oxidation Catalyst	Loaders, Tractor, Dozer, Pump, Compressor, Generator Set, Other Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
56 ≤ kW < 130	Tier 4 Final	STD	0.19	0.40	N/A	5.0	0.02	N/A	N/A	N/A
		CERT	0.02	0.33	--	0.1	0.02	--	--	--

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

This Executive Order hereby supersedes Executive Order U-R-004-0523 dated February 9, 2015.

Executed at El Monte, California on this 29th day of March 2016.

Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

FO#: U-R-004-0523-1

R/C 12-1-2016

Attachment: Page 1 of 1

Engine Model Summary Form

Manufacturer: **John Deere Power Systems**
Engine category: **Nonroad CI**
EPA Engine Family: **GJDXL04.5315**
Mfr Family Name: **350HCG**
Process Code: **Running Change**

1. Engine code	2. Engine Model	3. kW@RPM (SAE Gross)	4. Fuel Rate: mm/stroke@peak kW (for diesel only)	5. Fuel Rate: (kg/hr)@peak kW (for diesels only)	6. Torque (Nm) @RPM (SEA Gross)	7. Fuel Rate: mm/stroke@peak torque	8. Fuel Rate: (kW/hr)@peak torque	9. Emission Control Device Per SAE J1930
4045HAC04A	4045	104@2200	100.9@2200	22.6@2200	540@1600	113.7@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HAC04B	4045	86@2200	84.6@2200	19@2200	506@1600	105.8@1600	17.3@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HAC05A	4045	104@2200	100.9@2200	22.6@2200	540@1600	113.7@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HAC05B	4045	86@2200	84.6@2200	19@2200	506@1600	105.8@1600	17.3@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04A	4045	104@2200	100.9@2200	22.6@2200	540@1600	113.7@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04B	4045	100@2400	98.2@2400	23.5@2400	540@1600	114.2@1600	18.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04C	4045	93@2400	88.6@2400	21.7@2400	493@1600	103.1@1600	16.8@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04D	4045	93@2200	90.8@2200	20.4@2200	536@1600	112.7@1600	18.4@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04E	4045	86@2400	82.2@2400	20.1@2400	461@1600	96.8@1600	15.8@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04F	4045	86@2200	84.6@2200	19@2200	506@1600	105.8@1600	17.3@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04G	4045	74@2400	70.4@2400	17.2@2400	391@1600	84.2@1600	13.7@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04H	4045	74@2400	70.4@2400	17.2@2400	391@1600	84.2@1600	13.7@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04I	4045	74@2200	73.5@2200	16.5@2200	427@1600	89.3@1600	14.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04J	4045	74@2200	73.5@2200	16.5@2200	427@1600	89.3@1600	14.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04K	4045	63@2400	63.9@2400	15.6@2400	333@1600	72.2@1600	11.8@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04L	4045	63@2400	63.9@2400	15.6@2400	333@1600	72.2@1600	11.8@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04M	4045	63@2200	64.2@2200	14.4@2200	363@1600	68.4@1600	11.2@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04N	4045	63@2200	64.2@2200	14.4@2200	363@1600	68.4@1600	11.2@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HFC04O	4045	110@2200	107.4@2200	24.1@2200	540@1600	113.8@1600	18.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HLV71	4045	86@2400	81.4@2400	19.9@2400	519@1600	108.7@1600	17.7@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HLV72	4045	94@2200	91.3@2200	20.5@2200	519@1600	108.7@1600	17.7@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HLV73	4045	99@2200	98.2@2200	22@2200	540@1600	113.2@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HLV75	4045	94@2200	93.4@2200	21@2200	519@1600	107.9@1600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HLV76	4045	86@2400	81.5@2400	19.9@2400	519@1600	107.9@1600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HMC04A	4045	102@2200	99.9@2200	22.4@2200	534@1500	112.8@1500	17.2@1500	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HMC04B	4045	86@2200	84.8@2200	19@2200	480@1600	100.4@1600	16.3@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HMC04C	4045	104@2200	100.9@2200	22.6@2200	540@1600	113.7@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
*4045HMC05A	4045	104@2200	102@2200	23@2200	540@1600	113@1600	18.5@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
*4045HMC05B	4045	86@2200	85@2200	19.2@2200	480@1600	101@1600	16.4@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HP073	4045	94@2200	91.3@2200	20.5@2200	519@1600	108.7@1600	17.7@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HP075	4045	94@2200	93.4@2200	21@2200	519@1600	107.9@1600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HPRNT14	4045	106@2400	99.6@2400	24.4@2400	577@1600	123.1@1600	20.1@1600	EGR OC SCRC NH3OC DFI TC CAC ECM
4045HT096	4045	94@2200	93.4@2200	21@2200	519@1600	107.9@1600	17.6@1600	EGR OC SCRC NH3OC DFI TC CAC ECM

* New ratings added for running change